

Amendments to the Claims:

This listing of claims will replace all prior versions, and listings of claims in the application:

Listing of Claims:

Claims 1-66 (cancelled).

Claim 67 (previously added): A biomedical biocompatible polyurethane based on (i) a diisocyanate linked polyester polymer component and (ii) a diol component, said polyurethane having the formula  $\{A-B-C-B\}_n$  wherein A denotes said polyester component, B denotes said diisocyanate moiety, C denotes said diol component, n denotes the number of recurring units, and wherein at least 90% of the diol components, C, have the same block length, wherein the polyester component is a random copolyester component and is a copolyester component having at least two of a moiety selected from the group consisting of lactide, glycolide, trimethylene carbonate and  $\epsilon$ -caprolactone.

Claim 68 (cancelled).

Claim 69 (previously added): A biomedical biocompatible polyurethane produced according to a process comprising the steps of (i) reacting the polyester with an isocyanate end-capped diol component in order to form a prepolymer, the ratio of isocyanate end-groups to polyester end-groups

Appl. No. 09/701,622  
Amendment dated April 14, 2004  
Reply to Office Action of February 23, 2004

being at least 2:1, and then (ii) reacting the resulting prepolymer with water.

Claim 70 (previously added): A biomedical biocompatible polyurethane according to claim 69, based on a copolyester of lactide and  $\epsilon$ -caprolactone containing 5 to 95% of units of lactide and 5 to 95% of units of  $\epsilon$ -caprolactone, based on the total number of monomeric units in the polymer.

Claims 71-78 (cancelled).

Claim 79 (previously added): A biomedical biocompatible polyurethane based on (i) a diisocyanate linked polyester polymer component and (ii) a diol component, said polyurethane having the formula  $\{A-B-C-B\}_n$  wherein A denotes said polyester component, B denotes said diisocyanate moiety, C denotes said diol component, n denotes the number of recurring units, and wherein at least 90% of the diol components, C, have the same block length, comprising from 40 up to 60% of units of lactide, based on the total number of monomeric units in the polymer.

Claim 80 (previously added): A biomedical biocompatible polyurethane based on (i) a diisocyanate linked polyester polymer component and (ii) a diol component, said polyurethane having the formula  $\{A-B-C-B\}_n$  wherein A denotes said polyester component, B denotes said diisocyanate moiety, C denotes said diol component, n denotes the number of recurring units, and wherein at least 90% of the diol components, C, have the same block length, comprising

from 40 up to 60% of units of  $\epsilon$ -caprolactone, based on the total number of monomeric units in the polymer.

Claims 81-85 (cancelled).

Claim 86 (previously added): A process for the preparation of a biomedical biocompatible polyurethane based on (i) a diisocyanate linked polyester polymer component and (ii) a diol component, said polyurethane having the formula  $\{A-B-C-B\}_n$  wherein A denotes said polyester component, B denotes said diisocyanate moiety, C denotes said diol component, n denotes the number of recurring units, and wherein at least 90% of the diol components, C, have the same block length, comprising the steps of (i) reacting at least two moles of a diisocyanate with one mole of a diol selected from the group consisting of 1,4-butanediol, 1,6-hexanediol, diethyleneglycol and the reaction product of two molecules of said diol with the diisocyanate to form a first reaction product and (ii) reacting a polyester with said first reaction product.

Claims 87-92 (cancelled):

Claim 93 (currently amended): A biomedical biocompatible polyurethane [according to claim 87] based on (i) a diisocyanate linked polyester polymer component and (ii) a diol component, said polyurethane having the formula  $\{A-B-C-B\}_n$  wherein A denotes said polyester component, B denotes a 1,4-butane diisocyanate moiety, C denotes said diol component, n denotes the number of recurring units,

wherein at least 90% of the diol components, C, have the same block length and wherein the polyester component is based on (i) at least one carboxylic acid selected from the group consisting of lactic acid and succinic acid and (ii) at least one diol selected from the group consisting of ethylene glycol, 1,4-butanediol, 1,6-hexanediol and diethylene glycol.

Claim 94 (currently amended): A process for the preparation of a biomedical biocompatible polyurethane [defined according to claim 87] based on (i) a diisocyanate linked polyester polymer component and (ii) a diol component, said polyurethane having the formula  $\{A-B-C-B\}_n$  wherein A denotes said polyester component, B denotes a 1,4-butane diisocyanate moiety, C denotes said diol component, n denotes the number of recurring units, and wherein at least 90% of the diol components, C, have the same block length, comprising the steps of (i) reacting at least 2 moles of 1,4-butane diisocyanate with 1 mole of a polyester to form a first reaction product and (ii) reacting a diol selected from the group consisting of 1,4-butanediol, 1,6-hexanediol, diethylene- glycol and the reaction product of two molecules of said diol with the 1,4-butane diisocyanate with said first reaction product.

Claim 95 (cancelled).

Claim 96 (currently amended): A method for reconstruction of at least one meniscal lesion comprising the step of effecting an adhesive implant to meniscal tissue having at

least one of said lesions of a meniscus-reconstructing quantity at a meniscus-reconstructing rate of at least one polyurethane [defined according to claim 87] based on (i) a diisocyanate linked polyester polymer component and (ii) a diol component, said polyurethane having the formula  $\{A-B-C-B\}_n$  wherein A denotes said polyester component, B denotes a 1,4-butane diisocyanate moiety, C denotes said diol component, n denotes the number of recurring units, and wherein at least 90% of the diol components, C, have the same block length, for a fibrocartilage induction time of from 10 up to 30 weeks.

Claim 97 (currently amended): A biomedical biocompatible polyurethane [according to claim 87] based on (i) a diisocyanate linked polyester polymer component and (ii) a diol component, said polyurethane having the formula  $\{A-B-C-B\}_n$  wherein A denotes said polyester component, B denotes a 1,4-butane diisocyanate moiety, C denotes said diol component, n denotes the number of recurring units, and wherein at least 90% of the diol components, C, have the same block length, having a phase separated morphology, comprising (i) soft segments [selected from the group consisting of [(a)] polyester components[, and (b) polyether components] and (ii) urethane-based hard segments of uniform size, said hard segments consisting of diol components having a uniform block-length, and wherein (A) the diol component and (B) at least one of the polyester[, or the polyether] components have been linked to the 1,4-butane diisocyanate component by means of reaction thereof with 1,4-butane diisocyanate.

Claims 98-100 (cancelled).

Claim 101 (previously added): A process for preparing a biomedical biocompatible polyurethane based on (i) a diisocyanate linked polyester polymer component and (ii) a diol component, said polyurethane having the formula  $\{A-B-C-B\}_n$  wherein A denotes said polyester component, B denotes said diisocyanate moiety, C denotes said diol component, n denotes the number of recurring units, and wherein at least 90% of the diol components, C, have the same block length comprising the steps of:

- i. admixing equimolar quantities of L-lactide and  $\epsilon$ -caprolactone in the presence of a stannous octoate catalyst and a butanediol initiator thereby forming a L-lactide- $\epsilon$ -caprolactone prepolymer;
- ii. admixing butanediol with a six-fold excess of butane diisocyanate thereby forming an isocyanate-terminated urethane block;
- iii. dissolving the L-lactide- $\epsilon$ -caprolactone prepolymer in dimethyl sulfoxide to form a first solution;
- iv. dissolving the isocyanate-terminated block in dimethyl sulfoxide to form a second solution;
- v. admixing the first solution with the second solution to form a polyurethane reaction mass;
- vi. recovering the resulting urethane polymer from the reaction mass.

Claim 102 (previously added): A biomedical biocompatible polyurethane based on (i) a diisocyanate linked polyester polymer component and (ii) a diol component, said polyurethane having the formula  $\{A-B-C-B\}_n$  wherein A denotes said polyester component, B denotes said diisocyanate moiety, C denotes said diol component, n denotes the number of recurring units, and wherein at least 90% of the diol components, C, have the same block length wherein the polyester component is based on a linear random copolyester.

Claim 103 (previously added): A polyurethane according to claim 102 wherein B is a 1,4-butane diisocyanate component.

Claim 104 (previously added): A polyurethane according to claim 102 where C is selected from the group consisting of butanediol components, hexanediol components, diethylene glycol components and reaction products of the diisocyanate moiety and two molecules of the diol component.

Claim 105 (previously added): A biomedical biocompatible polyurethane according to claim 102 consisting of repeating units of the following formula:

$\{C(O)-NH-R_1-NH-C(O)-O-D-O-C(O)-NH-R_1-NH-C(O)-O-E-O\}_n$ ,  
wherein  $R_1$  is an n-butylene moiety, D is a polyester moiety, E is an n-butylene diol, an n-hexylene diol or a diethylene glycol based moiety and n indicates the number of repeating units.

Claim 106 (previously added): A biomedical biocompatible polyurethane according to claim 102 consisting of repeating units of the following formula:

$\{C(O)-NH-R_1-NH-C(O)-O-D-O-C(O)-NH-R_1-NH-C(O)-O-E-O\}_n$ ,  
wherein  $R_1$  is an n-butylene moiety, D is a polyester moiety, E is selected from the group consisting of n-butylene, n-hexylene,  $-CH_2-CH_2-O-CH_2-CH_2-$  and  $-XYX-$ , wherein X is selected from the group consisting of an n-butylene glycol-based moiety, an n-hexylene glycol-based moiety and a diethylene glycol-based moiety and Y is a 1,4-butane diisocyanate-based moiety resulting from the reaction of 1,4-butane diisocyanate with a diol selected from the group consisting of n-butylene glycol, n-hexylene glycol and diethylene glycol, with the mole ratio of glycol:diisocyanate being 2:1.

Claim 107 (previously added): A biomedical biocompatible polyurethane according to claim 102, wherein the polyester component is based on a polyester prepared by ring opening polymerization.

Claim 108 (previously added): A biomedical biocompatible polyurethane according to claim 102, wherein the polyester component is based on (i) at least one carboxylic acid selected from the group consisting of lactic acid and succinic acid and (ii) at least one diol selected from the group consisting of ethylene glycol, 1,4-butanediol, 1,6-hexanediol and diethylene glycol.



Claim 109 (previously added): A process for the preparation of a biomedical biocompatible polyurethane defined according to claim 102 comprising the steps of (i) reacting at least 2 moles of a diisocyanate with 1 mole of a polyester to form a first reaction product and (ii) reacting a diol selected from the group consisting of 1,4-butanediol, 1,6-hexanediol, diethylene-glycol and the reaction product of two molecules of said diol with the diisocyanate with said first reaction product.

Claim 110 (previously added): An implant constructed from at least one biomedical biocompatible polyurethane defined according to claim 102 having a porosity of 50 to 99 vol.%.

Claim 111 (previously added): A method for reconstruction of at least one meniscal lesion comprising the step of effecting an adhesive implant to meniscal tissue having at least one of said lesions of a meniscus-reconstructing quantity at a meniscus-reconstructing rate of at least one polyurethane defined according to claim 102 for a fibrocartilage induction time of from 10 up to 30 weeks.

Claim 112 (currently amended): A biomedical biocompatible polyurethane [according to claim 102] based on (i) a diisocyanate linked polyester polymer component and (ii) a diol component, said polyurethane having the formula  $\{A-B-C-B\}_n$  wherein A denotes said polyester component, B denotes said diisocyanate moiety, C denotes said diol component, n denotes the number of recurring units, and wherein at least 90% of the diol components, C, have the

same block length, wherein the polyester component is based on a linear random copolyester, said biocompatible polyurethane having a phase separated morphology, comprising (i) soft segments [selected from the group] consisting of [(a)] polyester components [and (b) polyether components] and (ii) urethane-based hard segments of uniform size, said hard segments consisting of diol components having a uniform [bock-length] block-length, and wherein (A) the diol components and (B) [at least one of] the polyester [or the polyether] components have been linked to a diisocyanate component by means of reaction thereof with a diisocyanate.

Claim 113 (previously added): A biomedical biocompatible polyurethane according to claim 102, wherein the block-length is the same for at least 98% of the diol units.

Claim 114 (previously added): A biomedical biocompatible polyurethane according to claim 102, wherein the diisocyanate is an aliphatic diisocyanate.

Claim 115 (previously added): A biomedical biocompatible polyurethane according to claim 102 wherein the diisocyanate-linked polyester component is a 1,4-butane diisocyanate-linked polyester component.